

AMENDMENT UNDER C.F.R. § 1.116
U.S. Application No. 10/826,300
Attorney Docket No. Q80724

REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 1-20 are pending in the application. The rejections are respectfully submitted to be obviated in view of the remarks presented herein.

Rejection of Claims 1, 14 and 15 (Case, Jr. et al.)

Claims 1, 14 and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Case, Jr. et al. (U.S. Patent Number 5,825,350; hereinafter “Case”). The rejection is respectfully traversed.

Regarding independent claim 1, the claimed invention relates to an apparatus for enhancing the accuracy of a sensor signal output from a sensor by estimating and compensating for bias. The apparatus includes a low-pass filter, an operation determination unit, a bias estimating unit and a subtractor. The operation determination unit is operable to determine whether the sensor is not in operation. The bias estimating unit is operable to estimate bias included in the low frequency sensor signal output from the low-pass filter according to the output of the determination unit. The subtractor is operable to subtract the estimated bias from the low frequency sensor signal according to the output of the operation determination unit.

The Examiner has alleged on page 5 of the Office Action that Case discloses that “the determination whether the sensor is in operation or not is proportional to the output signal from the sensor,” and further that “when the x count indicate movement of less than the minimum threshold amount, if so, the value of x-count (out put filtered signal from sensor) to zero” (referring to figure 18 and column 14, lines 6+).

However, Applicants respectfully argue that the Examiner's statement that "the determination whether the sensor is in operation or not is proportional to the output signal from the sensor" is not an accurate statement as applied to Case's bias offset determination circuit. This proportionality does not exist in Case because, in Case, it is impossible to determine that a sensor is not in operation through a detection of angular acceleration. This is due to the assumption Case makes that the pointing apparatus (100) is motionless based solely on a detection of angular acceleration being within a specified window (a threshold amount). Case thus only detects an angular acceleration of the pointing apparatus (100), and assumes a motionless state when the actual angular acceleration does not exceed the threshold amount.

The claimed invention recites the determination of whether the sensor is not in operation. On the contrary, Case's pointing apparatus (100) is never detected to be not in operation, but rather its operational data is collected (angular acceleration) but nowhere does Case suggest that the pointing apparatus (100) is at any time not in operation. An assumption of the pointing apparatus (100) being motionless is made when, during its operation, its angular acceleration remains within a specified window (column 14, lines 14-20). Therefore, Case's pointing apparatus (100), even when an assumption is made that it is motionless, is still in operation and achieves a particular angular acceleration which would render the pointing apparatus (100) to definitely be in operation, yet with the angular acceleration staying within the specified window.

Thus, the angular acceleration of Case's pointing apparatus (100) is detected, with which a motionless state may be assumed depending on the detection, however, Case is still unable to determine a non-operational state of the pointing apparatus (100) because the assumed

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motionless state can not be proportional to a “not in operation state” due to the fact that the assumed motionless state still dictates that the pointing apparatus (100) is operational and has an angular acceleration even if it is within a specified window and rendered motionless.

At least by virtue of the aforementioned differences, the invention defined by claim 1 is distinguished over Case. Independent claim 14 is a related method claim, and is distinguished over Case for analogous reasons. Claim 15 is a dependent claim including all of the elements of independent claim 14, which as established above, is distinguished over Case. Therefore, claim 15 should be allowable over Case for at least the aforementioned reasons as well as for its additionally recited features. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) are respectfully requested.

With further regard to claim 15, the determination as to whether or not the sensor is not in operation includes “differentiating the low frequency sensor signal; and ... determining that the sensor is not operating when an amplitude of the differentiated, low frequency signal is a first value or less, and an amplitude of the low frequency sensor signal is a second value or less.” Applicants again respectfully argue that Case fails to anticipate or render obvious these claimed elements. As described above, Case’s window comparator (1808) is only capable of ascertaining whether an angular acceleration calculated by the differentiator (1806) remains within a specified window, with no relation as to whether or not the sensor (100) is in operation. Case’s window comparator (1808) determines whether the signal output from the differentiator (1806) is within a specified window, however, the angular acceleration within the specified window is not taught or suggested to be an amplitude of a differentiated, low frequency sensor signal of “a first value

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of less.” Further, Case does not determine whether an amplitude of the signal output from the low pass filter (1802) “is a second value or less.” Additionally, Case does not make any determination of whether the sensor is not operating based on amplitude values of both a differentiated low frequency sensor signal and a low frequency sensor signal. At least by virtue of these additional differences as well as for the aforementioned reasons, the claimed invention is distinguished over Case. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) are respectfully requested.

Rejection of Claims 1, 14 and 15 (Applicants’ Prior Art Figure 1)

Claims 1, 14 and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Applicants’ prior art submitted in figure 1. Applicants respectfully maintain that the claimed invention is allowable over the cited prior art for the same reasons as discussed above.

Applicants’ submitted Figure 1 depicts a block diagram of a bias compensating apparatus as disclosed in Case (paragraph [04]). As discussed above, the bias compensating apparatus of the prior art fails to teach or suggest the claimed invention. Therefore, claims 1, 14 and 15 should also be allowable over prior art Figure 1. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) are respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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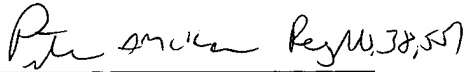
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Date: January 17, 2006